

We claim:

1. A process for synthesizing biodiesel from renewable oils, comprising:

carrying out a transesterification reaction, in the presence of an enzyme catalyst, between a low carbon fatty acid ester RCOOR' as an acyl acceptor and a renewable oil, wherein the molar ratio of the low carbon fatty acid ester to the renewable oil is in the range of from 3:1 to 20:1, the transesterification reaction producing a glycerine tri-(low carbon) carboxylic ester by-product, and

reacting the glycerine tri-(low carbon) carboxylic ester by-product with a low carbon alcohol $\text{R}'\text{OH}$ to obtain the low carbon fatty acid ester, wherein the low carbon fatty acid ester is capable of being recycled in a further round of biodiesel synthesis,

wherein R and R' are independently selected from the group consisting of alkyls with one to four carbon atoms.

2. A process according to claim 1, wherein the transesterification reaction is carried out at a temperature of 20°C to 60°C .

3. A process according to claim 2, wherein the transesterification reaction is carried out at a temperature of 30°C to 50°C .

4. A process according to claim 1, wherein the transesterification reaction is carried out for 4 to 20 hours.

5. A process according to claim 1, wherein the amount of the enzyme is 5 to 30% based on the weight of the renewable oil.

6. A process according to claim 1, wherein the molar ratio of the low carbon fatty acid ester to the renewable oil is 4:1-14:1.

7. A process according to claim 1, wherein the low carbon fatty acid ester is selected from the group consisting of methyl acetate, ethyl acetate, methyl formate, ethyl formate, methyl propionate, ethyl propionate, methyl butyrate, butyl formate and combinations thereof.

8. A process according to claim 1, wherein the enzyme is one or more lipase obtained from *Candida antarctica* and *Rhizomucor miehei*.

9. A process according to claim 8, wherein the lipase is selected from the group consisting of Novozym 435, Lipozyme RM and a combination thereof.

10. A process according to claim 1, wherein the renewable oil is selected from the group consisting of castor oil, rapeseed oil, soybean oil, fish oil, lard, waste grease, alga renewable oils and combinations thereof.